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EXECUTIVE SUMMARY



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JOINT LOGISTICS COMMANDERS 4TH BIENNIAL SOFTWARE WORKSHOP

'ORLANDO II'

EXECUTIVE SUMMARY

MAY 1987

PRODUCED FOR THE
JOINT LOGISTICS COMMANDERS JOINT POLICY COORDINATING GROUP
FOR COMPUTER RESOURCE MANAGEMENT

THIS DOCUMENT WAS PRODUCED BY THE
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EXECUTIVE SUMMARY

1. INTRODUCTION

Orlando II is the fourth in a series of biennial workshops focusing on relevant software support issues pertinent to Mission Critical Computer Resources (MCCR). The previous workshops, Monterey I & II and Orlando I, were instrumental in the identification of issues that could be addressed in Department of Defense (DOD) standards for the development of mission critical systems. One of those issues dealt with how to handle the problems associated with Post Deployment Software Support (PDSS). The central theme of Orlando II was "Solving the PDSS Challenge". The Orlando II Workshop addressed the problems causing the current crisis in support of MCCR. The workshop selectees were assigned to one of eight panels. Each panel was assigned one particular PDSS related topic and tasked to identify PDSS problems concerning that topic. The panel then was to develop solutions which offer significant payoffs in terms of cost reduction, improved system reliability, and streamlining the PDSS process.

➤ Specific panel topics were as follows:

- I. PDSS Planning During Development
- II. Forecasting PDSS Resource Requirements
- III. Software Change Process
- IV. PDSS Standards
- V. PDSS Management Indicators and Quality Metrics
- VI. Human Resources in PDSS
- VII. Software Technology Transition
- VIII. MCCR Security. *Synopsis of the workshop*

This document is the Executive Summary which presents a synopsis of each panel's topics, concerns, and recommendations. The panels were assigned areas that would allow sufficient latitude in reviewing PDSS concerns and proposing recommendations for DOD and industry implementation. Detailed information on the workshop is contained in separate volumes. Volume I is a summary of products and recommendations, Volume II is the complete workshop proceedings, and Volume III is the action plan that contains the specific tasks developed by the eight panels.

The following paragraphs present a synopsis of the related panels deliberations.



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2. INDIVIDUAL PANEL SYNOPSIS

2.1 Panel I - PDSS Planning During Development. This panel examined how to improve PDSS effectiveness and timely use. They reviewed the various planning, policy and budget issues that affect PDSS. A major recommendation was that PDSS must be recognized as covering an entire program's life cycle. PDSS considerations must therefore be addressed in the Request for Proposals (RFPs), contract awards, and milestone reviews. An equally important issue concerned the problems surrounding the data rights for software, and how to improve the Government's ability to obtain those rights.

2.2 Panel II - Forecasting PDSS Resource Requirements. This panel explored how to achieve successful planning for software resources through the utilization of proper tools to help in the decision process. A key recommendation was that each Service should adopt a policy to implement a Constructive Cost Model (COCOMO)-like forecasting method. To improve forecast accuracy, standardized software data collection should be initiated to calibrate model computational algorithms. Also, models should be refined and enhanced through additional research. To ensure Service representatives and associated contractors are adept at using various methods, a training program should be initiated to cover software cost estimating methodologies. The long term goal would be the adoption of a standard DOD Software Cost Estimating (SCE) model.

2.3 Panel III - Software Change Process. This panel examined the PDSS model developed in the Orlando I Workshop to determine if it was too complex and how to simplify it. As a basis, they recommended that the original PDSS definition (not the model) be accepted as an initial baseline. The definition is:

"Post Deployment Software Support is the sum of all activities required to ensure that, during the production/deployment phase of a mission-critical computer system's life, the implemented and fielded software/system continues to support its original operational mission and subsequent mission modifications and product improvement efforts."

In addition, PDSS should be broken out into three standard areas: management, technical, and support. The panel also recommended that the Computer Resources Life Cycle Management Plan (CRLCMP) be revised to reflect a PDSS strategy decision early in the CRLCMP development, thus allowing future planning to have a basis from which to build and request resources from. Surrounding the basic PDSS modeling is the process of the configuration management (CM) which, if implemented properly, has a positive effect on the system in terms of PDSS. The panel discovered there were inconsistencies and deficiencies in current DOD CM directives and standards. They recommended updating current policies and developing a common, automated, software Configuration Status Accounting (CSA) system. All of this would be followed by appropriate handbooks to assist DOD activities.

2.4 Panel IV - PDSS Standards. Panel IV reviewed the Defense System Software Development Standard (DOD-STD-2167) and the draft of the Defense System Software Quality Program Standard (DOD-STD-2168) for applicability to PDSS. They found that there were areas that would require improvement if PDSS is to be addressed. The consensus was that the development standard was the ideal avenue to start the PDSS process, the earlier the better. The panel noted specifics from an Army standard that would enhance DOD-STD-2167. Specific comments on DOD-STD-2167 were generated by the panel and forwarded to the Joint Policy Coordinating Group for Computer Resource Management (JPCG-CRM).

2.5 Panel V - PDSS Management Indicators and Quality Metrics. The panel addressed the need to have management indicators and quality metrics on contracts in order to establish the software development discipline as a science and to assure continuation of a quality product during the PDSS process. The under-utilization of available indicators precludes weapon system warranties and decreases the Government's ability to measure the performance, cost, and schedule constraints that the software must operate under. With the lack of metrics use, the ability to share data across DOD and industry is impaired. Panel V recommended automating the metric gathering process, incorporating metrics into current DOD policies, and allowing the transition of metric data from the development agencies to the maintainers to avoid redundancy and excessive maintenance costs.

2.6 Panel VI - Human Resources in PDSS. The panel addressed how to recruit, train and retain knowledgeable software personnel to support PDSS. Their review concentrated on educational and training initiatives, plus various career management procedures. The major thrust that developed was the need for a consolidated approach to software engineering training, with an increased awareness by DOD management that this type of training is necessary. The panel recommended that an Ad Hoc group be formed to address these concerns and make specific recommendations to DOD management, and that a new software engineering job series for the Government and civilian workforce be established.

2.7 Panel VII - Software Technology Transition. The panel concentrated on identifying policies and methods to transition the necessary software tools from the development phase to the support phase of the systems life cycle, while at the same time, controlling their proliferation. This area involved addressing the productivity of Ada tools. A key point was that there was a need to identify, procure, and provide widespread distribution of common PDSS tools, methods, and processes. Three major recommendations were put forward:

- 1) Develop a PDSS training program for Program Managers.
- 2) Establish a joint-Service PDSS software commonality office to help in the tools transition.
- 3) Establish cost effective criteria for Ada conversion.

2.8 Panel VIII - MCCR Security. The specific tasks this panel reviewed concerned the lack of computer security in delivered systems. This compounds the difficulty in dealing with the PDSS process, since there currently is little guidance for specifying and assessing MCCR security requirements. Existing computer security guidelines do not adequately address MCCR requirements. The major recommendations of the panel were to provide more direction in DOD-STD-2167, which provides initial guidance for MCCR security. However, additional tasking is required which involves development of automated tools and techniques to support trusted systems and the development of an efficient and effective MCCR security architecture.

3. SUMMARY

The Orlando II Workshop addressed a wide variety of issues concerning Post Deployment Software Support. The challenge was to identify key issues and drivers; this was accomplished. In addition to the identification of key PDSS areas, each panel proposed solutions that could ensure PDSS would be a discipline to be evaluated and designed into our weapon systems in the future. The task now before the JLC is to push forward into the PDSS area and establish it as a viable systems engineering parameter that affects a weapon system more than any state-of-the-art technology would.

Any questions concerning this material may be forwarded to:

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